

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: Grumann, et al. Patent Application
Application No.: 09/882,845 Group Art Unit: 2194
Filed: June 15, 2001 Examiner: Truong, Lechi
For: APPARATUS AND METHOD FOR ENHANCING PERFORMANCE OF A COMPUTER SYSTEM

APPEAL BRIEF

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I. Real Party in Interest

The assignee of the present application is Hewlett-Packard Development Company,

L.P.

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II. Related Appeals and Interferences

There are no related appeals or interferences known to the Appellants.

III. Status of Claims

Claims 1-26 are pending. Claims 1-26 are rejected. This Appeal involves Claims 1-26.

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IV. Status of Amendments

All proposed amendments have been entered. An amendment subsequent to the Final Action has not been filed.

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V. Summary of Claimed Subject Matter

Independent Claims 1, 12, 14 and 24 pertain to various embodiments for enhancing performance of a computer system. For example, independent Claim 1 recites “A computer-implemented method (601) for enhancing performance of a computer system (100),” which is described at least at page 5 line 28 to page 6 line 2, Figures 1, 5 and 6. “Electronically deriving (630) relationships (400, 401, 450, 451, 420, 421, 470, 471) over time (T1-T7 Table 3 on page 2) between monitored system variables (110, table 1 on page 10) and monitored performance (120-123) of said computer system (100)” is described at least at page 5 line 28 to page 6 line 2, page 6 lines 4-7, page 7 lines 7-8, page 6 lines 11-13, page 7 lines 32-33, page 8 line 25 to page 9 line 13, page 11 lines 24-26, Table 3 on page 12, page 9 line 32 to page 10 line 1, page 13 lines 12-23, Figures 1, 4, 5, and 6. “Automatically generating (640) a number of rules (500-502) based on said derived relationships (400, 401, 450, 451, 420, 421, 470, 471), wherein said number of rules (500-502) are generated without requiring human interaction,” is described at least at page 14 line 17 to page 15 line 8, Table 1 on page 10, Table 2 on page 11, Table 3 on page 12, Figures 4, 5 and 6. “Adjusting (645) at least one of said system variables (110, table 1 on page 10) based on said generated number of rules (500-502) to enhance the performance (120-123) of said computer system (100),” is described at least at page 16 lines 8-10, Figures 1, 5, and 6.

Independent Claim 12 recites, “A computer-implemented method (601) for enhancing performance of a computer system (100),” which is described at least at page 5 line 28 to page 6 line 2, Figures 1, 5 and 6. “Electronically deriving (630) relationships (400, 401, 450, 451, 420, 421, 470, 471) over time (T1-T7 Table 3 on page 2) between monitored system variables (110, table 1 on page 10) and monitored performance (120-123) of said computer system (100)” is described at least at page 5 line 28 to page 6 line 2, page 6 lines 4-7, page 7 lines 7-8, page 6 lines 11-13, page 7 lines 32-33, page 8 line 25 to page 9 line 13, page 11 lines 24-26, Table 3 on page 12, page 9 line 32 to page 10 line 1, page 13 lines 12-23, Figures 1, 4, 5, and 6. “Automatically generating (640) a number of rules (500-502) based on said derived relationships (400, 401, 450, 451, 420, 421, 470, 471), wherein said number of rules (500-502) are generated without requiring human interaction,” is described at least at page 14 line 17 to page 15 line 8, Table 1 on page 10, Table 2 on page 11, Table 3 on page 12, Figures 4, 5 and 6. “Adjusting (645) at least one of said system variables (110, table 1 on

page 10) based on said generated number of rules (500-502) to enhance the performance (120-123) of said computer system (100)," is described at least at page 16 lines 8-10, Figures 1, 5, and 6.

Independent Claim 14 recites, "An apparatus for enhancing performance of a computer system (100)," which is described at least at page 5 line 28 to page 6 line 2, Figures 1, 5 and 6. "Program code for deriving (630) relationships (400, 401, 450, 451, 420, 421, 470, 471) over time (T1-T7 Table 3 on page 2) between monitored system variables (110, table 1 on page 10) and monitored performance (120-123) of said computer system (100)," is described at least at page 5 line 28 to page 6 line 2, page 6 lines 4-7, page 7 lines 7-8, page 6 lines 11-13, page 7 lines 32-33, page 8 line 25 to page 9 line 13, page 11 lines 24-26, Table 3 on page 12, page 9 line 32 to page 10 line 1, page 13 lines 12-23, Figures 1, 4, 5, and 6. "Program code for automatically generating (640) a number of rules (500-502) based on said derived relationships (400, 401, 450, 451, 420, 421, 470, 471), wherein said number of rules (500-502) are generated without requiring human interaction," is described at least at page 14 line 17 to page 15 line 8, Table 1 on page 10, Table 2 on page 11, Table 3 on page 12, Figures 4, 5 and 6. "Program code for adjusting (645) at least one of said system variables (110, table 1 on page 10) based on said generated number of rules (500-502) to enhance the performance (120-123) of said computer system (100)" is described at least at page 16 lines 8-10, Figures 1, 5, and 6.

Independent Claim 24 recites, "An apparatus for enhancing performance of a computer system," which is described at least at page 5 line 28 to page 6 line 2, Figures 1, 5 and 6. "Means for electronically deriving (630) relationships (400, 401, 450, 451, 420, 421, 470, 471) over time (T1-T7 Table 3 on page 2) between monitored system variables (110, table 1 on page 10) and monitored performance (120-123) of said computer system (100)" is described at least at page 5 line 28 to page 6 line 2, page 6 lines 4-7, page 7 lines 7-8, page 6 lines 11-13, page 7 lines 32-33, page 8 line 25 to page 9 line 13, page 11 lines 24-26, Table 3 on page 12, page 9 line 32 to page 10 line 1, page 13 lines 12-23, Figures 1, 4, 5, and 6. "Means for automatically generating (640) a number of rules (500-502) based on said derived relationships (400, 401, 450, 451, 420, 421, 470, 471), wherein said number of rules (500-502) are generated without requiring human interaction," is described at least at page 14 line 17 to page 15 line 8, Table 1 on page 10, Table 2 on page 11, Table 3 on page 12, Figures 4,

5 and 6. “Means for adjusting (645) at least one of said system variables (110, table 1 on page 10) based on said generated number of rules (500-502) to enhance the performance (120-123) of said computer system (100)” is described at least at page 16 lines 8-10, Figures 1, 5, and 6.

VI. Grounds of Rejection to Be Reviewed on Appeal

1. Claims 1-3, 5-15, and 17-26 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,059,842 by Dumarot et al. (referred to herein as “Dumarot”) in view of U.S. Patent No. 6,432,985 by Clare et al. (referred to herein as “Clare”).

2. Claims 4 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Dumarot in view of Clare and further in view of Japanese Patent No. 403010379 by Mihata et al. (referred to herein as “Mihata”).

VII. Argument

1. Whether Claims 1-3, 5-15, and 17-26 are Unpatentable Under 35 U.S.C. §103(a) over Dumarot in view of Clare.

Appellants have reviewed the cited art and respectfully submit that the embodiments of the present invention as recited in Claims 1-3, 5-15 and 17-26 are neither taught nor suggested by Dumarot or Clare, alone or in combination.

Independent Claim 1 recites,

A computer-implemented method for enhancing performance of a computer system, comprising:

electronically deriving relationships over time between monitored system variables and monitored performance of said computer system;

automatically generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction; and

adjusting at least one of said system variables based on said generated number of rules to enhance the performance of said computer system.

“As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries” including “[a]scertaining the differences between the claimed invention and the prior art” (MPEP 2141(II)). “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious” (emphasis in original; MPEP 2141.02(I)). Appellants note that “[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations, however, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art” (emphasis added; MPEP 2141(III)).

DUMAROT

This section describes Appellants' understanding of what Dumarot teaches.

Appellants understand Dumarot to teach that a user specifies levels of optimization. A user specified level of optimization controls which application settings are used to optimize an application. For example, the user can cause a system to maximize performance and sacrifice graphic quality by entering a value of "True" for the suppressAutoRefresh parameter, which indicates redrawing of graphics should be suppressed. Appellants further understand Dumarot to teach that a user specifies rules. A user specified rule is used to optimize and/or to make recommendations to the user for optimization.

Thus, Appellants do not understand Dumarot to teach "electronically deriving relationships over time between monitored system variables and monitored performance of said computer system; automatically generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction; and adjusting at least one of said system variables based on said generated number of rules to enhance the performance of said computer system,"" (emphasis added) as recited by Claim 1.

CLARE

This section describes Appellants' understanding of what Clare teaches. Appellants understand Clare to teach various relationships, such as a known relationship between temperature and torque factor, and equations that can be used for calculating a value for K_t event (torque factor at a future time/event) instead of calculating a value for the conventional

$K_{t\text{ recall}}$ (torque factor performed at start-up). Appellants also understand Clare to teach using the $K_{t\text{ event}}$ value instead of using the conventional $K_{t\text{ recall}}$ value in a seek algorithm.

Thus, Appellants do not understand Clare to teach “electronically deriving relationships over time between monitored system variables and monitored performance of said computer system; automatically generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction; and adjusting at least one of said system variables based on said generated number of rules to enhance the performance of said computer system,” (emphasis added) as recited by Claim 1.

The Office Action states in the second paragraph of page 3, “However, Clare teaches automatically generating rules without requiring human interaction, deriving relationships over time ...” At the end of the first paragraph on page 4, the Office Action states, “Clare does not teach determine relationship with human interaction, this relationship is automatically generated without requiring the human interaction.” First, to clarify the record, the Office Action has misquoted the embodiment recited by Claim 1. Second, the Office Action appears to be confusing relationships with rules as recited by Claim 1. Appellants respectfully point out that Claim 1 recites, “electronically deriving relationships over time between monitored system variables and monitored performance of said computer system; generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction” (emphasis added). Note that the rules are generated based on the relationships and it is the rules that are generated without requiring human interaction.

Therefore, Appellants do not understand Clare to remedy the deficiencies in Dumarot in that Appellants do not understand either Dumarot or Clare, alone or in combination, to teach or suggest, “electronically deriving relationships over time between monitored system variables and monitored performance of said computer system; automatically generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction; and adjusting at least one of said system variables based on said generated number of rules to enhance the performance of said computer system,” (emphasis added) as recited by Claim 1.

SUMMARY

For at least these reasons, Appellants believe that independent Claim 1 should be patentable. For similar reasons, independent Claims 12, 14, and 24 should be patentable. Claims 2, 3 and 5-11 depend from independent Claim 1, Claim 13 depends from independent Claim 12, Claims 15 and 17-23 depend from independent Claim 14, and Claims 25 and 26 depend from independent Claim 24. The dependent claims include all of the features of their respective independent claims. Further the dependent claims include additional features which further make them patentable. Therefore, the dependent claims should be patentable for at least the reasons that the respective independent claims should be patentable.

2. Whether Claims 4 and 16 are Anticipated Under 35 U.S.C. §103(a) over Dumarot in view of Clare and further in view of Mihata.

Appellants have reviewed the cited art and respectfully submit that the embodiments of the present invention as recited in Claims 4 and 16 are patentable over Dumarot, Clare, and Mihata, alone or in combination.

As described above in the discussion of the rejection of Claims 1-3, 5-15 and 17-26, Appellants do not understand the combination of Dumarot in view of Clare to teach, disclose or suggest the claimed embodiments of the present invention as recited by independent Claims 1 and 14. Moreover, Appellants submit that Mihata does not overcome the deficiencies in Dumarot and Clare. Appellants understand Mihata to teach a design rules verifying system. Appellants do not understand Mihata, alone or in combination with Dumarot and Clare, to teach or suggest a method for enhancing performance of a computer system, including “electronically deriving relationships over time between monitored system variables and monitored performance of said computer system,” or “automatically generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction,” as recited by Claim 1. Therefore, independent Claim 1 should be patentable over the combination of Dumarot in view of Clare, further in view of Mihata. For similar reasons Claim 14 should be patentable over the combination of Dumarot in view of Clare, further in view of Mihata. Claim 4 depends on independent Claim 1. Claim 16 depends on independent Claim 14. Appellants respectfully submit that Claims 4 and 16 overcome the rejection under 35 U.S.C. § 103(a) as these claims are dependent on allowable base claims.

Appellants respectfully point out that the rejections based only on Mihata are based only on the Abstract of Mihata, which is the only portion of Mihata that is translated into English. Appellants respectfully point out that paragraph 3 of the Office Action appears to state that Claims 4 and 16 are rejected "...and in view of Mihata..." Therefore, it appears to Appellants, that the Office Action is rejection Claims 4 and 16 on the basis of the entire Mihata cited art while only providing a translation of Mihata's abstract. For the seventh time during the prosecution of the current patent application, Appellants have respectfully requested an English translation of the cited non-English cited art by Mihata, Japanese Patent 403010379. In the event that Mihata is again cited by the Examiner in rejecting the claims, in order to fully appreciate the scientific teachings of Mihata, Appellants request that the Examiner provide a complete translation of Mihata in order to fully understand its teachings.

Conclusion

Appellants believe that pending Claims 1-3, 5-15 and 17-26 are patentable over Dumarot in view of Clare. Appellants believe that pending Claims 4 and 16 are patentable over Dumarot in view of Clare and further in view of Mihata. As such, Appellants submit that Claims 1-26 are patentable over the cited art.

Appellants respectfully request that the rejection of Claims 1-26 be reversed. The Appellants wish to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellants' undersigned representative if it is felt that a telephone conference could expedite prosecution.

Respectfully submitted,
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Dated: 09/26/2008

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VIII. Appendix - Clean Copy of Claims on Appeal

1. A computer-implemented method for enhancing performance of a computer system, comprising:

electronically deriving relationships over time between monitored system variables and monitored performance of said computer system;

automatically generating a number of rules based on said derived relationships, wherein said number of rules are generated without requiring human interaction; and

adjusting at least one of said system variables based on said generated number of rules to enhance the performance of said computer system.

2. A computer-implemented method as in claim 1, wherein said generating said number of rules is based at least in part on a performance goal.

3. A computer-implemented method as in claim 1, wherein said generating said number of rules is based at least in part on current values of said system variables, and wherein said number of rules recommend incremental changes to said system variables.

4. A computer-implemented method as in claim 1, wherein said deriving said relationships, said generating said number of rules, and said adjusting said at least one system variable, are iterative.

5. A computer-implemented method as in claim 1, further comprising acquiring data for said system variables and the performance of said computer system, wherein said acquired data is used for deriving said relationships.

6. A computer-implemented method as in claim 5, wherein acquiring said data comprises:

gathering said data over time; and

logging said gathered data, wherein said relationships are derived based on said logged data.

7. A computer-implemented method as in claim 6, wherein said gathering said data is at discrete points in time.

8. A computer-implemented method as in claim 6, wherein said gathering said data is in response to an event on said computer system.

9. A computer-implemented method as in claim 5, wherein said acquiring said data comprises acquiring at least one of the following types of data: configuration data, workload data, and performance metric data.

10. A computer-implemented method as in claim 1, further comprising identifying a number of applications on said computer system having variables that affect the performance of said computer system.

11. A computer-implemented method as in claim 1, further comprising identifying a number of subsystem components on said computer system having variables that affect the performance of said computer system.

12. A computer-implemented method for enhancing performance of a computer system, comprising:

electronically deriving a plurality of relationships over time between a plurality of monitored system variables and monitored performance of said computer system;

automatically generating a plurality of rules based on said plurality of derived relationships, wherein said plurality of rules are generated without requiring human interaction; and

adjusting at least one of said system variables based on said generated plurality of rules to enhance the performance of said computer system.

13. A computer-implemented method as in claim 12, wherein the performance of said computer system is based on a plurality of performance metrics.

14. An apparatus for enhancing performance of a computer system, comprising:

computer readable storage media;
computer readable program code stored on said computer readable storage media,
comprising:
program code for deriving relationships between system variables and the
performance of said computer system;
program code for automatically generating a number of rules based on said
derived relationships, wherein said number of rules are generated without requiring
human interaction; and
program code for adjusting at least one of said system variables based on said
generated number of rules to enhance the performance of said computer system.

15. An apparatus as in claim 14, wherein said number of rules are generated by said
program code based at least in part on a performance goal.

16. An apparatus as in claim 14, further comprising program code for iteratively
deriving relationships between said system variables and the performance of said computer
system, and iteratively generating a number of rules based on said derived relationships when
an adjustment is made to said at least one system variable.

17. An apparatus as in claim 14, further comprising program code for acquiring data
for said system variables and the performance of said computer system.

18. An apparatus as in claim 17, wherein at least some of said data is acquired from a
configuration file.

19. An apparatus as in claim 17, wherein at least some of said data is acquired by
monitoring said computer system.

20. An apparatus as in claim 17, wherein said program code for acquiring said data
comprises:

program code for gathering said data over time;

program code for logging said gathered data, wherein said program code for deriving
derives said relationships based on said logged data.

21. An apparatus as in claim 17, wherein said program code for acquiring said data acquires at least one of the following types of data: configuration data, workload data, and performance metric data.

22. An apparatus as in claim 14, further comprising program code for identifying a number of applications on said computer system having variables that affect the performance of said computer system.

23. An apparatus as in claim 14, further comprising program code for identifying a number of subsystem components of said computer system having variables that affect the performance of said computer system.

24. An apparatus for enhancing performance of a computer system, comprising:
means for electronically deriving relationships over time between monitored system variables and monitored performance of said computer system;
means for automatically generating a number of rules based on said derived relationships, wherein said generated number of rules are generated without requiring human interaction; and
means for adjusting at least one of said system variables based on said generated number of rules to enhance the performance of said computer system.

25. An apparatus as in claim 24, further comprising means for acquiring data for said system variables and the performance of said system.

26. An apparatus as in claim 25, wherein said acquiring means comprises:
means for gathering said data over time; and
means for logging said data, wherein said relationships are derived based on said logged data.

IX. Evidence Appendix

No evidence is herein appended.

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X. Related Proceedings Appendix

No related proceedings.